AUTHORS: Tsvetkova, N. K., Dionis'yev, D. Ye. (Deceased)   79-28-4-4/60

TITLE: Investigation of Interaction Between Diphenyl Amine and
            Organic Acids by Physical-Chemical Analysis Methods
                    (Issledovaniye vzaimodeystviya difenilamina s or=
            ganicheskimi kislotami metodami fiziko-khimicheskogo analiza)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 4,
            pp. 868-872 (USSR)

ABSTRACT: Compared to the amines of the aliphatic series aromatic
            amines have weaker basic properties since the presence
            of the electric negative benzene nucleus in the molecule
            of the aromatic amine reduces its basicity. The basic
            properties of the secondary, purely aromatic amines e. g.
            in the case of diphenyl amine where the molecule contains
            two benzene nuclei, are especially strongly reduced. For
            this reasong it was of special interest to investigate the
            character of the interaction. of diphenyl amine and materials
            showing acid properties. The authors have recrystallized
            3 times diphenyl amine from petroleum naphta and dried it
Card 1/3   with warm air in the exsiccator. The pure product had its

Investigation of Interaction Between Diphenyl Amine
and Organic Acids by Physical-Chemical Analysis Methods

melting point at $53^{\circ}C$. The investigation of fusibility
and the determination of melting temperatures of the
pure materials was carried out by means of the visual
polythermal method. Density was measured by means of a
pycnometer by Ren'o with a small stem and a volume of
4.5 milliliters. Viscosity was determined in the closed
viscosimeter by Ostval'd. The electric conductivity was
measured by means of the method by Kol'raush in a closed
container with smooth platinum electrodes. Measurings of
density of viscosity and electric conductivity were carried
out in the glycerin thermostat. This made it possible to main-
tain temperatures within the range of $+0.1^{\circ}\%$. For the prepa-
ration of the mixtures the method of the single weighed
portions was applied. Computation of the concentration was
made in molar percents and viscosity in centi poises. The
system diphenyl amine – monochloracetic acid which has not
been investigated before was investigated by the authors as
to their fusibility (Fig. 1). Equally, the system diphenyl
amine – trichloracetic acid was investigated by the authors
for the first time and their fusibility, viscosity, density
and specific conductivity (Fig. 2) were determined. Diphenyl

Card 2/3

Investigation of Interaction Between Diphenyl Amine   79-28-4-4/60
and Organic Acids by Physical-Chemical Analysis' Methods

amine - p - nitrobenzoic acid was investigated as to its
fusibility (Fig. 3). Also diphenyl amine salicylic acid
was investigated only as to its fusibility (Fig. 4). The
same also holds for diphenyl amine succinic acid (Fig. 5)
and diphenyl amine adipic acid (Fig. 6). The diagrams set
up for the mentioned system - except for the system with
succinic acid - indicate the lacking of chemical interac=
tions between the components. It was found that the pre=
sence of 2 benzene rings in the molecule of diphenyl amine
strongly reduces its complex-forming ability.
There are 6 figures and 14 references, 12 of which are
Soviet.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov
na Donu State University)

SUBMITTED: March 27, 1957

Card 3/3

AUTHORS: Tsvetkova, N. K., Dionis'yev, D. Ye. SOV/79-28-6-59/65
              (Deceased)

TITLE: Investigation of the Reaction   of Phenyl-β-Naphthylamine
              With Organic Acids According to Methods of Physical-
              -Chemical Analysis (Issledovaniye vzaimodeystviya fenil-
              -β-naftilamina s organicheskimi kislotami metodami fiziko-
              -khimicheskogo analiza)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp.
              1702 - 1704 (USSR)

ABSTRACT: The introduction of a benzene nucleus into the molecule of
              the aromatic amine to a great extent decreases its activity
              towards organic acids. It was of interest to the authors to
              explain inhowfar the exchange of a benzene nucleus in the
              molecule of the secondary amine by a naphthalene nucleus
              could effect the convertability with organic acids. The
              reaction of phenyl-β-naphthylamine with organic acids has
              hitherto not been dealt with. The authors investigated the
              systems formed of phenyl-β-naphthylamine with salicylic-,
Card 1/3   succinic- and adipic acid with respect to their fusibility.

Investigation of the **Reaction** of Phenyl-β-Naphthylamine SOV/79-28-6-59/63
With Organic Acids According to Methods of
Physical-Chemical Analysis

Phase diagrams were obtained for the mentioned systems
which point to the absence of a chemical reaction between
the components. The fusibility, viscosity, density and
electric conductivity of the systems formed of phenyl-β-
-naphthylamine with trichloroacetic acid **was investigated. From the**
phase diagrams of the system the process of conversion of the
components in solid and liquid phase can be seen. The
substitution of a benzene nucleus in the molecule of the
secondary aromatic amine by a naphthalene nucleus does not
exert any influence on the character of its conversion
with organic acids. There are 4 figures and 2 references,
2 of which are Soviet.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet
(Rostov-na-Donu State University)

SUBMITTED: March 27, 1957

Card 2/3

Investigation of the Reaction of
Phenyl-β-Naphthylamine with Organic Acids
According to Methods of Physical-Chemical Analysis

SOV/ 79-28-6-59/65

1. Organic acids--Chemical reactions

Card 5/5

AUTHORS: Tsvetkova, N. K., Dionis'yev, D. Ye. SOV/79-28-6-59/65
            (Deceased)

TITLE: Investigation of the Reaction   of Phenyl-β-Naphthylamine
            With Organic Acids According to Methods of Physical-
            -Chemical Analysis (Issledovaniye vzaimodeystviya fenil-
            -β-naftilamina s organicheskimi kislotami metodami fiziko-
            -khimicheskogo analiza)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp.
            1702 - 1704 (USSR)

ABSTRACT: The introduction of a benzene nucleus into the molecule of
            the aromatic amine to a great extent decreases its activity
            towards organic acids. It was of interest to the authors to
            explain inhowfar the exchange of a benzene nucleus in the
            molecule of the secondary amine by a naphthalene nucleus
            could effect the convertability with organic acids. The
            reaction   of phenyl-β-naphtnylamine with organic acids has
            hitherto not been dealt with. The authors investigated the
            systems formed of phenyl-β-naphthylamine with salicylic-,
            succinic- and adipic acid with respect to their fusibility.

Card 1/3

Investigation of the **Reaction**   of Phenyl-β-Naphthylamine SOV/79-28-6-59/63
With Organic Acids According to Methods of
Physical-Chemical Analysis

Phase diagrams were obtained for the mentioned systems
which point to the absence of a chemical reaction between
the components. The fusibility, viscosity, density and
electric conductivity of the systems formed of phenyl-β-
-naphthylamine with trichloroacetic acid **was investigated. From the
phase diagrams of the system the process of conversion of the**
components in solid and liquid phase can be seen. The
substitution of a benzene nucleus in the molecule of the
secondary aromatic amine by a naphthalene nucleus does not
exert any influence on the character of its conversion
with organic acids. There are 4 figures and 2 references,
2 of which are Soviet.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet
               (Rostov-na-Donu State University)

SUBMITTED: March 27, 1957

Card 2/3

Investigation of the Reaction of
Phenyl-β-Naphthylamine with Organic Acids
According to Methods of Physical-Chemical Analysis

SOV/ 79-28-6-59/65

1. Organic acids--Chemical reactions

Card 3/3

TSVETKOVA, N.K.; LOZNIKOVA, N.K.

Study on the carbohydrate composition of mustard cakes by
the chromatographic method. Trudy Astr. tekh. inst. ryb. prom.
i khoz. no.8:3-8 '62.

Determination of fatty monobasic and dibasic acids in the mustard
cake by the paper chromatography method. Ibid.:9-13 '62.
                                                    (MIRA 17:8)

TAUBE, P.R.; TSVETKOVA, N.K.; SHAVSKIY, G.S.

Studying mustard cake. Izv.vys.ucheb.zav.; pishch.tekh. no.4:
30-33 '58.   (MIRA 11:11)

1. Astrakhanskiy tekhnicheskiy institut rybnoy promyshlennosti,
Kafedra obshchey khimii.
            (Mustard oil) ·   (Sinigrin)

TSVETKOVA, N.K.

Study on the interaction between secondary aromatic amines
and aromatic nitro compounds by methods of physicochemical
analysis. Trudy Astr. tekh. inst. ryb. prom. i khoz. no.8:
14-24 '62.   (MIRA 17:8)

ADAMOV, A.I.; TSVETKOVA, N.L.

Some results from the study of injection wells by the
activated suspension method in a flooded area of the
Kirmaki series 9-12 in the Oil Field Administration of the
Azizbekov Azerbaijan Research Institute. Azerb. neft. khoz.
39 no.2:21-23 F '60.   (MIRA 14:8)
                    (Oil field flooding)

TSVETKOVA, N. L.

Species, distribution and ecology of gammarid crustaceans of the genus Anisogammarus (Amphipoda, Gammaridae) in the littoral zone of the Kurile Islands. Zool. zhur. 44 no.3:348-362 '65.

(MIRA 18:8)

1. Zoological Institute, Academy of Sciences of the U.S.S.R., Leningrad.

TSVETKOVA, N.L.

New genus of Gammaridae (Amphipoda) from coastal areas of
the Sea of Japan. Zool.zhur. 44 no.11:1631-1636 '65.
(MIRA 18:12)

1. Zoologicheskiy institut AN SSSR, Leningrad.

TSVETKOVA, N.M.

Wind regime characteristics in the Central Black Earth Region.
Sbor.rab.Kursk.gidromet.obser. no.1:18-38 '60.   (MIRA 14:8)
(Central Black Earth Region--Winds)

TSVETKOVA, N.M.

Improving the methodology of snow surveys.   Trudy GGO no.130:84-86
'62.   (MIRA 15:7)

1. Kurskaya gidrometeorologicheskaya observatoriya.
                    (Snow surveys)

TSVETKOVA, N.M.

Improved methods for observations of the snow cover applicable to
the local features. Sbor.rab.Kursk.gidromet.obzerv. no.2:66-72 '64.

Quantity of solid precipitations measured by precipitation and rain
gauge. Ibid.:73-78   (MIRA 17:9)

TSVETKOVA N. N.

USSR/Chemistry - Spectral analysis

Card 1/1   Pub. 43 - 61/97

Authors   :   Buyanov, N. V.; Pollyul', Yu. P.; and Tsvetkova, N. N.

Title   :   The mutual effect of the material of the upper and lower electrodes
                 during spectral analysis of ferrous metals

Periodical   :   Izv. AN SSSR. Ser. fiz. 18/2, page 280, Mar-Apr 1954

Abstract   :   The mutual effect of electrode materials (Fe, Cu, Ni, Al and C - upper
                 electrodes - and binary and tertiary alloys and steel - lower electrodes)
                 during the spectral analysis of ferrous metals was investigated. The
                 findings of the investigation are listed.

Institution :   Central Scientific Research Institute of Ferrous Metallurgy

Submitted   :   .....

AGAFONOVA, Z.Ya., kand. biolog. nauk; STRUKOV, A.V.; SAMOKHINA, V.P.; KIRSANOV, N., inzh.; PILYUGIN, N.V.; TSVETKOVA, N.N.

Responses to our articles. Zashch. rast. ot vred. i bol.
9 no.2:12-16 '64. (MIRA 17:6)

1. Zaveduyushchaya laboratoriyey zashchity rasteniy Kurskoy opytnoy stantsii (for Agafonova). 2. Direktor Pskovskoy gosudarstvennoy sel'skokhozyaystvennoy opytnoy stantsii (for Strukov). 3. Zaveduyushchaya otdelom zashchity rasteniy Pskovskoy gosudarstvennoy sel'skokhozyaystvennoy opytnoy stantsii (for Samokhina). 4. Glavnyy agronom mekhaniziro-vannogo otryada Yaroslavskoy stantsii zashchity rasteniy (for Pilyugin). 5. Glavnyy agronom Tatarskoy stantsii zash-chity rasteniy (for TSvetkova).

BOYARSKIY, B.G.; PLOTNIKOV, V.F.; SOBOLEVA-DOKUCHAYEVA, I.I.; TSVETKOVA, N.N.;
ABRAMENKO, V.V.

Information and brief news. Zashch. rast. ot vred. i bol. 8
no.4:56-59 Ap '63.   (MIRA 16:10)

(Plants, Protection of)

TSVETKOVA, N.N., kand. biol. nauk; SKAZKIN, F.D., red.; FROLOV, A.A., red.; FOMINA, E.A., red.

[Transpiration and its role in the life of plants; bibliographic index for 1926-1958]Transpiratsiia i ee znachenie v zhizni rastenii; bibliograficheskii ukazatel', 1926-1958. Pod red. F.D.Skazkina. Leningrad, Akad. nauk SSSR, 1962. 158 p.
(MIRA 15:10)

1. Deystvitel'nyy chlen Akademii pedagogicheskikh nauk RSFSR (for Skazkin). 2. Zaveduyushchaya bibliotekoy Botanicheskogo instituta im. V.L.Komarova Akademii nauk SSSR (for TSvetkova).
(Bibliography--Plants--Transpiration)

TSVETKOVA, N.N., kand. biol. nauk; SKAZKIN, F.D., doktor biol.
nauk, red.; FOMINA, Ye.A., red.

[Physiological significance of mineral nutrition as related
to water requirements in the life of plants; a bibliographic
index for 1926-1962] Fiziologicheskoe znachenie mineral'nogo
pitaniia v sviazi s vodnym rezhimom v zhizni rastenii; bib-
liograficheskii ukazatel', 1926-1962. Sost. N.N.TSvetkova.
Pod red. F.D.Skazkina. Leningrad, 1964. 174 p.
(MIRA 17:5)

1. Akademiya nauk SSSR. Biblioteka. 2. Deystvitel'nyy chlen
Akademii pedagogicheskikh nauk RSFSR (for Skazkin).

SHAROVA, Z. P., TSVETKOVA, N. N.

Dyes and Dyeing - Rayon

Preparation and dyeing of natural and artificial silk. Reviewed by V. L. Rubyrin.
Tekst. prom. 12 no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, ___April___ 195ᴚ, Uncl.

TSVETKOVA, N. N.

USSR/ Agriculture - Plant physiology

Card : 1/1

Authors : Skazhin, F. D. and Tsvetkova, N. N.

Title : Effect of nitrogen on barley during water shortage in the soil.

Periodical : Dokl. AN SSSR, 97, Ed. 3, 539 - 542, July 21, 1954

Abstract : Laboratory data are presented on the effect of N (during various periods of its action) on the growth od barley during water shortage in the soil. Four USSR references. Tables, illustrations.

Institution : Acad. of Pedagogical Sc. USSR, The P. F. Lesgaft Institute of Natural Science

Presented by : Academician, A. L. Kursanov, May 25, 1954

TSVETKOVA, N.N.

:Seminar in the fields. Zashch. rast. ot vred. i bol. 6 no.11:32
N '61.
(MIRA 16:4)

1. Starshiy agronom Ekspeditsii po bor'be s vreditelyami i
boleznyami sel'skokhozyaystvennykh rasteniy Tatarii.
(Tatar A.S.S.R.—Plants, Protection of)

TSVETKOVA, N.V.

Effect of adenosinetriphosphoric acid on uterine contractions under experimental and clinical conditions. Akush. i gin. no5: 3-10 S-O '55.   (MLRA 9:1)

1. Iz akushersko-ginekologicheskoy kliniki no.2 (zav.-dotsent T.Ya Kalinichenko) Kiyevskogo ordena Trudovogo Krasnogo Znameni miditsinskogo instituta imeni akad. A.A. Bogomol'tsa.
        (UTERUS, physiol.
                contractions eff. of ATP)
        (ADENYLPYROPHOSPHATE, eff.
                on uterine contractions)

STRIGACHEV, A.T.; NOVIKOV, L.S.; SOROKIN, A.A.; KHALKIN, V.A.; TSVETKOVA,
    N.V.; SHPINEL', V.S.

Investigating neutron-deficient Tb isotopes.   Izv. AN SSSR. Ser.
fiz. 25 no.7:813-825 Jl '61.   (MIRA 14:7)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo
gosudarstvennogo universiteta im. M.V. Lomonosova i Ob "yedinennyy
institut yadernykh issledovaniy.
                    (Terbium--Isotopes)

TSVETNOVA, R.V.; DYATKINA, S.L.; SHEREMET'YEVA, S.N.; KEL'N, A.R.;
    KRASIL'SHIKOV, A.I.

Corrosion and passivity of titanium in sulfuric acid. Zhur. fiz.
khim. 37 no.5:1037-1042 My '63.   (MIRA 17:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut azotnoy promyshlennosti.

L 28026-66   EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWP(t)/E   UR/0089/65/019

(N)   SOURCE CODE:

ACC NR: AP5026446

AUTHOR: Goryanina, Ye. N.; Popkov, K. K.; Rubanov, S. M.; Tsvetkova, S. A.

ORG: None

TITLE: Reduction of capture gamma rays and of radiative heat release in reactors by means of borated thermal shields and other protective measures.

SOURCE: Atomnaya energiya, v. 19, no. 4, 1965, 383

TOPIC TAGS: nuclear reactor, nuclear reactor shield

ABSTRACT: An abbreviated version of the original paper is presented. In their paper the authors investigated theoretically the effect of introducing an admixture of boron to the thermal water-iron shielding of water-cooled and water-moderated reactors. In homogeneous reactors, the boron admixture was added to a 25-cm thick water-iron mixture, while in heterogeneous reactors, the shields made of boron steel were used. In the original paper, the concentration of boron was calculated for various areas including the exterior surface of the reactor. It was also shown that: (1) the addition of boron to thermal shields considerably reduced the radiative heat release; (2) the use of boron steel shields

UDC: 539.121.73:539.1

L 28026-66

ACC NR: AP5026446

with a boron content exceeding 2% was not advisable; (3) the use of lead and boron-containing materials for protection of the reactor exterior surface, reduced considerably (3 to 5 times) the capture gamma radiations from thermal shields and the reactor vessel. In this respect, the use of lead was the most effective measure, although in thick lead layers (over 6 cm) the increase of capture gamma rays from lead was observed.

SUB CODE: 18 / SUBM DATE: 22May65 / ORIG REF: 004 / OTH REF: 000

Card 2/2

KIRYANINA, Ye.N.; POPKOV, K.K.; LUBANOV, S.M.; TSVETKOVA, S.N.

Increase of trapping gamma-radiation and radiative heat release in a reactor vessel with the aid of some blocking and boration of the thermal shield. Atom. energ. 19 no.4:383 O '65.   (MIRA 18:11)

TSVETKOVA, ST.

BULGARIA/Pharmacology and Toxicology. Tranquilizers   V-2

Abs Jour : Ref Zhur - Biol., No 15, 1958, No 71112

Author   : Kirov K., Lazarov P., Petkov P., Aleksandrova M., Tsvetkova
           St., Vasileva B.
Inst   : —
Title   : On the Treatment of Psychoses with Serpasil

Orig Pub : S'vrem. med., 1957, 8, No 10, 39-47

Abstract : In connection with experience of the use of serpasil (S) in
           psychoses, a beneficial, although sometimes transient, effect
           of S upon syndromes of the emotional excitation in the
           maniacal states was noted. Favorable results were observed
           in the acute stage of paranoic and catatonic forms of
           schizophrenia, alongside with which there exists a distinct
           parallelism between the effect of S on the physical and
           psychic condition. In some cases of chronic schizophrenia,
           a temporary remission occurred. The previous treatment with
           S was improving and prolonging remissions following electro-
           convulsion therapy. Bibliography: 10 titles.
Card   : 1/1

PAVLOV, Aleksandr Vladimirovich; TSVETKOVA, S.G., kand. tekhn.
nauk, otv. red.; KONDRAT'YEVA, V.I., red.

[Heat transfer between freezing and thawing soils and the
atmosphere] Teploobmen promerzaiushchikh i protaivaiushchikh
gruntov s atmosferoi. Moskva, Nauka, 1965. 253 p.
                                        (MIRA 18:4)

TSVETKOVA, S.G.

Thermal conditions of ground under lakes in the Igarka region.
Mat. k osn. uch. o merz. zon. zem. kory no.7:36-65 '61.
(MIRA 14:7)

(Igarka region—Frozen ground)
(Lakes)

PORKHAYEV, G.V.; TSVETKOVA, S.G.

Experimental methods of determining settling in thawing dispersion
soils which have been frozen for many years. Trudy Inst. merzl.
AN SSSR 14:64-69 '58.   (MIRA 11:8)
            (Frozen ground)
            (Soil mechanics)

TSVETKOVA, S.G.

Effect of dynamic loads on the strength of frozen ground.
Osn., fund. i mekh. grun. 2 no.5+7 '60.   (MIRA 13:9)
              (Frozen ground)   (Soil mechanics)

TSVETKOVA, S.G.

Results of the Seventh Interdepartmental Conference on Permafrost
Studies. Izv.AN SSSR. Ser.geol. 22 no.1:142:143 Ja '57.
                 (Frozen ground)   (MIRA 10:3)

TSVETKOVA, S.G.

Construction of dams in permafrost regions. Mat. k osn. uch. o
merz. zon. zem. kory no.6:87-112 '60.   (MIRA 13:10)
            (Dams)   (Frozen ground)

TSVETKOVA, S.G.

Determining the time required for piles to adfreeze to permafrost when steam points are used in embedding them. Mat. k osn. uch. o merz. zon. zem. kory no.6:16-30 '60.   (MIRA 13:10)
            (Piling (Civil engineering))   (Frozen ground)

SABUROVA, V.A., assistent; TSVETKOVA, S.P., student; ERLYAND, I.A.,
student (Kazan'); YAKOVLEVA, K.I. (Kazan'); MAMISH, M.G.,
kand.med.nauk (Kazan'); NIKOLAYEV, G.M., kand.med.nauk
(Kazan'); KAZ'MINA, G.K., studentka (Kazan'); TODORTSEVA, M.S.
(Saratov)

Short reports. Kaz. med. zhur. no.2:75-78 Mr-Ap '62.

(MIRA 15:6)

(MEDICINE—ABSTRACTS)

KIROV, K.; IAZAROV, P.; PETKOV, P.; ALEKSANDROVA, M.; TSVETKOVA, St.; VASILEVA, B.

Observations on serpasil therapy of psychoses. Suvrem. med., Sofia 8 no.10:39-47 1957.

1. Iz Psikho-nevrologichnata bolnitsa pri gara Karlukovo (Glaven Lekar: P. Lazarov).
    (PSYCHOSES, therapy,
        reserpine (Bul))
    (RESERPINE, therapeutic use,
        psychoses (Bul))

BLAZHNOVA, Ye.M.; KADNIKOV, I.K.; TUZOV, A.P.; FEL'DMAN, Ya.S.;
TSVETKOVA, T.D.

[Problems and exercises in ordinary differential equa-
tions; a textbook] Zadachi i uprazhneniia po obyknovennym
differentsial'nym uravneniiam; uchebnoe posobie. Lenin-
grad, Leningr. in-t tochnoi mekhaniki i optiki. 1963.
45 p.   (MIRA 18:5)

TSVETKOVA, T.

Illiteracy

Patriotic woman.   Sov. zhen. 9, No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953.   Uncl.

TSVETKOVA, T.

Ts'eng, Tuan-Yi

Patriotic woman. Sov. zhen. 9, No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress
June 1953.   UNCL.

BARONI, Ye.Ye.; KOVYRZINA, K.A.; TSVETKOVA, T.A.

P,P'-Diphenylstilbene. Part 3. Zhur.org.khim. 1 no.3:513-515 Mr
'65.
                                                        (MIRA 18:4)

TSVETKOVA, T. A.

Motion-picture group in a school. Fiz. v shkole 22 no.4:111
Jl-Ag '62.   (MIRA 15:10)

1. 122-ya shkola, Moskva.

(Motion pictures in education)

TSVETKOVA, TSV.

PEREL'MAN, M.I., kandidat meditsinskikh nauk; TSVETKOVA, T.A., studentka
V kursa.

Artificial hypothermic technique for the prevention of spinal
paralysis in prolonged ligation of the thoracic artery.
Khirurgiia, no.9:34-37 S '55.
(MLRA 9:2)

1. Iz kafedry operativnoy khirirgii i topograficheskoy anatomii
(zav. - prof. V.V. Kovanov) i Moskovskogo ordena Lenina
meditsinskogo instituta.
(AORTA, surg.
exper. prologned occlusion, prev. of spinal paralysis by
method of artif. hypothermia)
(PARALYSIS,
spinal, in exper. prolonged occlusion of thoracic aorta,
prev. by method of artif. hypothermia)

GATOV, A.G. [translator]; GINGOL'D, L.S. [translator]; GREBENNIKOVA, Ye.N.,
[translator]; ZANEGIN, B.N. [translator]; ZVONOV, A.A. [translator];
ISAYENKO, B.S. [translator]; KOTOV, A.V. [translator]; MAYZEROV, S.M.
[translator] SAFONOVA, Z.M. [translator]; SOVETOV, I.I. [translator];
SOROKIN, V.F. [translator]; TSVETKOVA, T.Ya. [translator]; CHZHOU,
Sun-yuan' [translator]; SOGOMONYAN, G.S. [translator], redaktor;
SHAPOVALOV, V.I., tekhnicheskiy redaktor

[Socialist developmen t in the Chinese village; a collection of
articles prepared by the office of the Central Committee of the
Chinese Communist Party] Sotsialisticheskii pod*em v kitaiskoi
dereven; sbornik izbrannykh statei podgotovlen kantseliariei
TsK KPK. Moskva, Izd-vo inostrannoi lit-ry, 1956. 502 p. (MIRA 9:10)
        (China--Agriculture)

1. TSVETKOVA, V.

2. USSR   (600)

4. Ivanovo Province - Labor and Laboring Classes

7. Care for improving living conditions of workers. Prof. soiuzy   No. 1   1953.

9. <u>Monthly</u> <u>List</u> <u>of</u> <u>Russian</u> <u>Accessions</u>, Library of Congress, _____April_____ 1953, Uncl.

TSVETKOVA, V., predsedatel'.

Competition for producing high-quality fabrics.   Sov. profsoiuzy
1 no.1:52-57 S '53.   (MLRA 6:12)

1. Ivanovskiy oblastnyy sovet professional'nykh soyuzov.
                                                    (Textile industry)

1. TSVETKOVA, V.

2. USSR (600)

4. Labor and Laboring Classes - Ivanovo Province

7. Care for improving living conditions of workers. Prof. soiuzy No. 1   1953.

9. Monthly List of Russian Accessions, Library of Congress, _____April_____1953, Uncl.

TSVETAYEV, Yuriy Vladimirovich; TSVETKOVA, V.A., red.; GRAKHOVSKAYA, T.M., red.izd-va; GALAKTIONOVA, Ye.N., tekhn. red.

[By automobile through the Caucasus; a guidebook] Na avtomobile po Kavkazu; putevoditel'. Moskva, Avtotransizdat, 1962. 221 p. (MIRA 16:4)

(Caucasus—Automobiles—Road guides)

SOLOV'YEV, B.F., kand.sel'skokhoz.nauk; TSVETKOVA, V.A., red.;
        GUREVICH, M.M., tekhn.red.

        [Sorgo is a valuable forage plant; a collection of
        articles] Sorgo - tsennaia kormovaia kul'tura; sbornik
        statei. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 206 p.
                                                        (MIRA 12:8)
                        (Sorghum)

KOSMACHEVSKIY, Andrey Semenovich, prof.; TSVETKOVA, V.A., red.; KAPYSHEVA,
    V.S.; DEYEVA, V.M., tekhn.red.

    [Injurious soil insects and measures for their control] Vrednye
pochvennye nasekomye i mery bor'by s nimi. Moskva, Gos.izd-vo
sel'khoz.lit-ry, 1959. 82 p.   (MIRA 13:1)
        (Insects, Injurious and beneficial)

YELAGIN, M.N.; ZAVERIN, A.S., red.; TSVETKOVA, V.A., red.; DEYEVA, V.M., tekhn.red.

[Advanced practices in sugar beet cultivation; experience of participants in the All-Union Agricultural Exhibition] Peredovye agrotekhnicheskie priemy v sveklovodstve; opyt uchastnikov VSKhV. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 237 p. (MIRA 12:9)

(Sugar beets)

RYTOV, Mikhail Vasil'yevich, 1846-1920; TSVETKOVA,V.A., redaktor; GOLUBIN-
SKAYA, Ye.S., redaktor; SOKOLOVA, N.N., tekhnicheskiy redaktor;
GUREVICH, M.M., tekhnicheskiy redaktor

[Selected works] Izbrannye trudy. Moskva, Gos. izd-vo selkhoz. lit-ry,
1956. 250 p.   (MLRA 9:11)
        (Botany)

KALININ, Mikhail Semenovich, kandidat sel'skokhozyaystvennykh nauk;
    TSVETKOVA, V.A., redaktor; FEDOTOVA, A.F., tekhnicheskiy redaktor;
    ZUBRILINA, Z.P., tekhnicheskiy redaktor

[Corn] Kukuruza. Moskva, Gos. izd-vo selkhoz. lit-ry, 19   0 p.
    (Corn (Maize))   (MIRA 10:1)

OSIPOVA,Ye.N.; KLOKOV, K.P., redaktor; TSVETKOVA, V.A., redaktor; SOKOLOVA,
    N.N., tekhnicheskiy redaktor

    [Green fallows and row crops to precede winter crops] Zaniatye pary
    i neparovye predshestvenniki; sbornik statei. Pod red. K.P.Klokova.
    Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 159 p.   (MIRA 9:11)
        (Rotation of crops)

MOSOLOV, Vasiliy Petrovich, akademik; SOKOLOV, N.S., professor, redaktor; IVANOV, N.I., redaktor; TSVETKOVA, V.A., redaktor; PAVLOVA, M.M., tekhnich' .iy redaktor

[Works: in five volumes] Sochineniia; v piati tomakh. Moskva, Gos. izd-vo solkhoz. lit-ry, Vol.5. [Papers and articles on cultivation practices and plant growing] Otdel'nye raboty i stat'i po agrotekhnike i rastenievodstvu. 1955. 767 p.   (MLRA 9:11)
          (Tillage)   (Field crops)

USSR / Farm Animals. Cattle.   Q

Abs Jour   : Ref Zhur - Biologiya, No 5, 1959, No. 21237

Author   : Tsvetkova, V. A.
Inst   : Izhevsk Institute of Agriculture
Title   : The Head Part of the Sympathetic Nervous System in
              Cattle

Orig Pub   : V sb.: Materialy nauchn. konferentsii (Izhevskiy
              s.-kh. in-t). Vyp. 2, Izhevsk, 1958, 133-140

Abstract   : By using contemporary macro-microscopic methods, the
              author studied and described the anatomy of the head
              part of the sympathetic nervous system (cervical node
              in the cranium) in cattle, the topography of its ele-
              ments, the nature of the sympathetic nervous system's
              connection with cranial nerves and the morphologic ducts
              of the salivary glands' sympathetic innervation. The
              results of the investigation showed that 10 - 12 nerve

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USSR / Farm Animals. Cattle.   Q

Abs Jour   : Ref Zhur - Biologiya, No 5, 1959, No. 21237

              trunks lead from all the surfaces of the cervical
              sympathetic node in the cranium, with the exception
              of the medial, and that the most powerful of these
              nerves is the inner carotid nerve. Within the composi-
              tion of the latter there are connective branches leading
              to the 3rd, 4th, 5th and 6th pairs of cranial nerves.
              In the composition of the outer carotid nerve of cattle
              there are sympathetic fibers for all of the salivary
              glands without exception as well as gray connective
              branches which lead to the pharyngeal branch of the
              vagus nerve and to the facial nerve. -- A. V. Istomina

Card 2/2

MAMEKOV, Gabiden Khozhgaliyevich; TSVETKOVA, V.A., red.; GALAKTIONOVA, Ye.N.,
tekhn. red.

[Automotive transportation in Kazakhstan during the last 40 years]
Avtomobil'nyi transport Kazakhstana za 40 let. Moskva, Nauchno-
tekhn. izd-vo M-va avtomobil'nogo tranporta i shosseinykh dorog
RSFSR, 1961. 42 p.   (MIRA 14:10)
            (Kazakhstan—Transportation, Automotive)

FIRSOV, A.P.; SANDOMIRSKAYA, N.D.; TSVETKOVA, V.I.; CHIRKOV, N.M.

Kinetics and mechanism of α-olefin polymerization on complex catalysts. Part 6: Polymerization of propylene in the presence of $TiCl_3$ and $Be(C_2H_5)_2$. Vysokom. soed. 4 no.12:1812-1816 D '62.   (MIRA 15:12)

1. Institut khimicheskoy fiziki AN SSSR.
     (Propene)   (Polymerization)   (Catalysts)

TSVETKOVA, V. I.

"The Kinetics of Slow Oxidation of Carbon Monoxides" from the book Chain Reaction on the Oxidation of Hydrocarbons in a Gaseous Phase, publ. by Inst. of Chem. Physics, AS USSR, 1955, 161.

TSVETTOVA, V. I.

TSVETTOVA, V. I.: "The kinetics of hydration of propylene and of the dehydration of isopropyl alcohol in the presence of a heterogenic phosphoric-acid catalyst of the film type". Moscow, 1955. Acad Sci USSR. Inst of Chemical Physics. (Dissertation for the Degree of Candidate of CHEMICAL Sciences)

SO: Knizhnaya Letopis' No. 51, 10 December 1955

USSR/ Chemistry - Physical chemistry

Card   1/1   Pub. 22 - 32/59

Authors   : Chirkov, N. M., and Tsvetkova, V. I.

Title   : Kinetics and reaction mechanism in the presence of thin films of
               nonvolatile acids. Hydration of propylene and dehydration of isopropyl
               alcohol over phosphoric acid

Periodical   : Dok. AN SSSR 102/2, 311-314, May 11, 1955

Abstract   : In order to explain the catalytic reaction mechanism of acids the authors
               investigated the kinetics of these processes in the presence of con-
               centrated acids. The hydration kinetics of propylene and the dehydration
               kinetics of isopropyl alcohol were investigated in the presence of pel-
               licular phosphoric acid catalysts at temperatures of 90 - 140° at total
               pressures of the reagents not exceeding atmospheric pressure. The re-
               sults obtained are described. Six references: 3 USSR, 2 Engl and 1 USA
               (1927-1954). Tables; graphs.

Institution : Acad. of Sc., USSR, Inst. of Chem. Phys.

Presented by : Academician V. N. Kondratyev, December 6, 1954

5(4)
AUTHORS:

Tsvetkova, V. I., Firsov, A. P.,
Chirkov, N. M.

TITLE:
The Determination of the True Constant of Rates in the Decomposition of Aliphatic Alcohols (Opredeleniye istinnykh konstant skorostey pri raspade alifaticheskikh spirtov)

PERIODICAL:

ABSTRACT:
In acid-catalytic transformations the basicity of the molecules of the reagent and the reactivity of the protonized forms are the most important factors that influence the course taken by reactions. Investigation of these factors is one of the main problems in the theory of acid catalysis. Previous papers dealing with this subject are dealt with in short. Works hitherto carried out in connection with the reactivity of alcohols have, according to the authors' opinion, the disadvantage that reaction rates are compared at different concentrations of the reacting particles. In order to avoid this mistake, the authors chose solutions of HCl in waterless alcohols as experimental objects. In these solutions only the solutions of alcohol are, of course, protonized. In the case

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The Determination of the True Constant of Rates in the SOV/20-124-1-39/69
Decomposition of Aliphatic Alcohols

of sufficient dilution, the HCl-molecules are nearly totally dissociated, and therefore the concentration of the ions of alcoxonium (alkoksoniy) will in practice be equal to the stoichiometric concentration of the acid. Under the conditions prevailing in this case, only alkyl-halides are formed by the dehydration of the alcohols as end products. The reactions occurring in the systems investigated can be described by the scheme $ROH + HCl \rightleftarrows ROH_2^+Cl^- \rightleftarrows ROH_2^+ + Cl^-$. In diluted solutions equilibrium is shifted to the right. It further holds that

$$ROH_2^+ \overset{k_1}{\longrightarrow} R^+ + H_2O \text{ (slow)}, \quad R^+ + Cl^- \longrightarrow RCl \text{ (fast)},$$
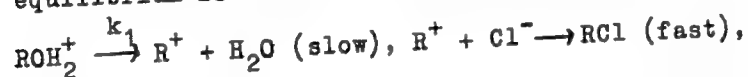
$$ROH_2^+ + Cl^- \overset{k_2}{\longrightarrow} RCl + H_2O.$$ The following aliphatic alcohols were used for experimental purposes: ethyl-n-propyl-alcohol, i-propyl-alcohol, n-butyl-alcohol, i-butyl-alcohol, and tertiary butyl alcohol. The investigation was carried out at $65 - 95°$ and at various initial concentrations of the HCl (from 0.03 to 1.5N) by means of the usual ampoule method. A

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The Determination of the True Constant of Rates in the   SOV/20-124-1-39/69
Decomposition of Aliphatic Alcohols

table by way of example shows the results for n-butyl-alcohol.
Analogous results were obtained also for other alcohols
investigated in this connection. With the investigated
experimental conditions prevailing, the monomolecular
mechanism predominates. For various alcohols a diagram
shows the dependence of the constants found on the temperature
for the initial HCl concentration $\sim$0.03. The activation energies
of most of the alcohols investigated did not differ essentially
from one another. Only in the case of isobutyl-alcohol
activation energy is considerably lower. It may be that in this
case the reaction develops according to another and more
complicated mechanism, and the values found for the constants
perhaps do not correspond with the true values. The considerable
differences between alcohol dehydration rates in aqueous acid
solutions are essentially determined by their different
degree of protonization. There are 1 figure, 2 tables, and
13 references, 6 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute
Card 3/4   for Chemical Physics of the Academy of Sciences, USSR)

S/076/60/034/009/032/041XX
B020/B056

AUTHORS: Tsvetkova, V. I., Firsov, A. P., and Chirkov, N. M.

TITLE: Determination of the True Constants of the Decay Rate of Alkoxonium Ions in the Interaction Between Aliphatic Alcohols and Hydrogen Chloride

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 9, pp. 2066-2074

TEXT: It was the purpose of the present work to determine the true constants of the decomposition rate of alkoxonium ions of a series of aliphatic alcohols: ethyl-, n-propyl-, isopropyl-, n-butyl-, iso-butyl-, and tert-butyl alcohol, and thus also of the reactivity of these ions. For this purpose, the formation rate of alkyl halides for HCl-solutions in water-free alcohols was investigated, viz. at various HCl-concentrations (from 0.03 to 1.5 N) in the temperature interval of from 65 to 95°C. The investigations were carried out in ampoules which had been placed into a liquid thermostat, whose temperature was kept constant with an accuracy of ±0.2°. For titration, a 0.02516 N NaOH-solution

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Determination of the True Constants of the   S/076/60/034/009/032/041XX
Decay Rate of Alkoxonium Ions in the Inter-   B020/B056
action Between Aliphatic Alcohols and Hydrogen
Chloride

was used; the indicator used was methyl red. Mainly the dependence of
the formation rate of alkyl halides on the initial concentration of
the HCl in water-free alcohols as well as the temperature dependence
of the reaction rate were investigated. The results obtained for HCl
solutions in ethyl-, n-propyl-, iso-propyl-, n-butyl-, and isobutyl
alcohol are given in Tables 1-6. In these tables the rate constant values
k_1 calculated from the equation of the monomolecular reaction at various
temperatures and different initial concentrations of HCl, the calculat-
ed values of the factors of the exponential functions k_0, and the acti-
vation energies E are given. The character of the relation between the
formation rate of the alkyl halide and the initial HCl concentration
is complicated. Table 7 gives the values of monomolecular constants for
70°, the factors of the exponential function, and the activation ener-
gies, as well as of the decomposition of the protonized molecules of
various alcohols. The values k_1, k_0, and E found for isobutyl alcohol

can, however, not be considered to be characteristic of the decay rate

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Determination of the True Constants of the   S/076/60/034/009/032/041XX
Decay Rate of Alkoxonium Ions in the Inter-   B020/B056
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Chloride

of the iso-$C_4H_9OH_2^+$-ions. From the data found it follows that the factors of the exponential functions for the ion decay $C_2H_5OH_2^+$, $C_3H_7OH_2^+$, $C_4H_9OH_2^+$, $(CH_3)_2CHOH_2^+$, and $(CH_3)_3COH_2^+$ have values of from $2.8 \cdot 10^{12}$ to $2.5 \cdot 10^{14}$ sec^{-1}, i.e., that lie near the theoretical value for monomolecular reactions. The activation energies of the decay of these ions are within the range of from 28,000 to 31,000 cal/mole (Table 7). At the same temperature, the values of the rate constants for the investigated alcohols differ by no more than the tenfold (cf. Table 7). The great differences found for the rates in the dehydration of the alcohols by means of aqueous acid solutions, cannot be explained solely by the different reactivity of the protonized alcohol molecules, but is, in a high degree, determined by the different basicity of the alcohols, i.e., by the parameters of thermodynamic, not kinetic, character. There are 7 tables and 18 references: 7 Soviet, 3 US, 6 British, and 2 German.
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Determination of the True Constants of the   S/076/60/034/009/032/041XX
Decay Rate of Alkoxonium Ions in the Inter-   B020/B056
action Between Aliphatic Alcohols and Hydrogen
Chloride

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki
               (Academy of Sciences of the USSR, Institute of Chemical
               Physics)

SUBMITTED: January 5, 1959

Card 4/4

TSVETKOVA, V.I.; PIROGOV, O.N.; LISITSYN, D.M.; CHIRKOV, N.M.

Kinetics and mechanism of olefin polymerization on complex catalysts.
Part 1: Kinetic equations and determination of the rate constants
for the polymerization of α-olefins on the system $TiCl_3$ – AlR_3 when
different methods of accomplishing the process are employed. Vysokom.
soed. 3 no.4:585-593 Ap '61. (MIRA 14:4)

1. Institut khimicheskoy fiziki AN SSSR.
(Olefins)   (Polymerization)

26293
S/190/61/003/008/006/019
B110/B220

15.8610

AUTHORS: Firsov, A. P., Tsvetkova, V. I., Chirkov, N. M.

TITLE: Kinetics and mechanism of the polymerization of α-olefins by complex catalysts. II. Polymerization of propylene in the presence of titanium trichloride and various aluminum alkyl compounds

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 8, 1961, 1161-1169

TEXT: The polymerization of propylene in the system $TiCl_3$ + AlR_3 containing the following cocatalysts: $Al(C_2H_5)_3$, $Al(n-C_3H_7)_3$, $Al(i-C_4H_9)_3$; $Al(C_6H_5)_3$; $Al(C_2H_5)_2Cl$ was studied in order to clear up the mechanism of polymerization in this system. The experimental apparatus shown in Fig. 1 consisted of: reaction vessel 1, device 2 for introducing the catalyst components, burette 3 for introducing the solvent into the reaction vessel, device 4 for regulating the constant pressure of the propylene, manometer 5 regulating the gas pressure in the reaction vessel, and ЭПП-08 (EPP-08) recorder 6

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Kinetics and mechanism of the ...

for recording the reaction rate based on the pressure of propylene, flask 7 for propylene, separating columns 8, and vacuum part 9. In order to dry the propylene obtained at 370°C by dehydration of isopropyl alcohol by means of Al_2O_3, it was passed through columns 8 filled with alkali, $Mg(ClO_4)_2$, and P_2O_5, and subsequently frozen by using liquid N_2. After the propylene had been thawed, the medium fraction was dried by Na wire. The alkyl halides were distilled twice. $TiCl_3$ was prepared according to G. Brauer (Ref. 6: Rukovodstvo po preparativnoy neorganicheskoy khimii. (Manual of Preparative Inorganic Chemistry) Izd. in. lit., M., p. 547). Polymerization was performed at 40-70°C and at a propylene pressure of 170-300 mm Hg in the reaction vessel. The reaction rate was determined from the consumption of propylene. It was found that polymerization proceeds in two stages: a) unsteadily with increasing rate; b) steadily at a constant rate. The time $\tau_{1/2}$ needed for reaching half the steady rate is a function of pressure: $\tau_{1/2} = Q/p_{C_3H_6}$ (4). $\tau_{1/2}$ increases as follows:

$Al(n-C_3H_7)_3 < Al(C_2H_5)_3 < Al(iso-C_4H_9)_3$. The variation of the reaction rate

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Kinetics and mechanism of the ...

is presumably due to the varying surface of the catalyst. The constants of the reaction rates are indicated in Table 1. The activation energy was almost constant within the experimental error: $E = 13,500 \pm 400$ cal/mole. The stereoisomeric composition of polypropylene is shown in Table 2. The following equation is derived for the constant k of the reaction rate:

$$k = \left[k_{incr} k_i / (k_{incr}/\nu + k_i) \right] S_{TiCl_3} c_o^*,$$ where k_{incr} is the constant of

increase; k_i is the constant of initiation; ν is the polymerization degree; S_{TiCl_3} is the surface of $TiCl_3$; and c_o^* is the total number of active centers. ✓

Provided that $k_i \gg k_{incr}/\nu$, k becomes equal to $AS_{TiCl_3} c_o^* \exp(-E_{incr}/RT)$.

The following values are indicated for the factor $AS_{TiCl_3} c_o^*$ in 1/min·g $TiCl_3$:

$Al(C_2H_5)_3$: $4.0 \cdot 10^6$; $Al(n-C_3H_7)_3$: $6.02 \cdot 10^6$; $Al(iso-C_4H_9)_3$: $3.15 \cdot 10^6$; $Al(C_6H_5)_3$: $0.9 \cdot 10^6$. The reaction rate is determined assuming that the polymerization is not effected by the growth of olefin molecules adsorbed

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Kinetics and mechanism of the ...

on the catalyst but by dissolved olefin molecules colliding with the cata-
lyst. The following is obtained per unit surface of $TiCl_3$, $70^\circ C$,
$P_{C_3H_6}$ = 1 atm per second: $n = N_o P/(2\pi MRT)^{1/2} = 2.2 \cdot 10^{23}$ $cm^{-2} \cdot sec^{-1}$
(N_o = Avogadro number; p = pressure of propylene in bars; $R = 8.31 \cdot 10^7$,
n = number of collisions per cm^2 and sec). The reaction rate is
$2.5 \cdot 10^{19}$ molecules/sec·g $TiCl_3$; S_{TiCl_3} = 5 m^2 per g of $TiCl_3$. The reaction
rate observed for $k \cdot o_{C_3H_6}$ was $4.5 \cdot 10^{18}$ molecules/sec·g $TiCl_3$. Considering
the approximative character of the calculation, the study is thought to be
satisfactory. A. F. Popov is thanked for the AlR_3 compounds made available.
There are 3 figures, 3 tables, and 9 references: 4 Soviet and 5 non-Soviet.
The reference to English-language publications reads as follows: Ref 2:
G. Natta, J. Polymer Sci., 34, 21-48, 1959.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical
              Physics AS USSR)

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27573
S/190/61/003/009/008/016
B110/B101

15.8061   2209, 2409, 1372

AUTHORS: Firsov, A. P., Sandomirskaya, N. D., Tsvetkova, V. I., Chirkov, N. M.

TITLE: Kinetics and polymerization mechanism of α-olefins on complex catalysts. IV. Polymerization of propylene in the presence of $TiCl_3$ and $Be(C_2H_5)_2$

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 9, 1961, 1352-1357

TEXT: It was the purpose of the present paper to enlighten the role of organometallic compounds of stereospecific complex catalysts. The polymerization of propylene (P) in the presence of $TiCl_3$ and $Be(C_2H_5)_2$ was compared with that carried out with $TiCl_3$ and $Al(C_2H_5)_3$ by G. Natta (see below). The authors' experimental method was applied (Ref. 5: A. P. Firsov et al., Vysokomolek. soyed., 3, 1161, 1961). The α-modification of $TiCl_3$ was prepared according to G. Brauer (Ref. 6: Rukovodstvo po preparativnoy

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neorganicheskoy khimii (Manual for preparative inorganic chemistry), M.,
1956). The distilled $Be(C_2H_5)_2$ contained 3% ether. Spectroscopically pure
n-heptane was used as a solvent. Polymerization was conducted at 30-70°C
and 220-585 mm Hg pressure, at a molar ratio of $Be(C_2H_5)_2$ to $TiCl_3 \approx 3$. As
the polymerization rate proportionally depended on the concentration of P,
for both $Be(C_2H_5)_2$ and $Al(C_2H_5)_3$, the rate constant k was calculated as
follows: $k = w/c_{C_3H_6} \cdot G_{TiCl_3}$ liter/min·g $TiCl_3$, where w = polymerization
rate in mole C_3H_6/min; $c_{C_3H_6}$ = P concentration in n-heptane at test
temperature in mole/liter, and G_{TiCl_3} = weighed $TiCl_3$ sample in g. At
temperatures of 30-70°C, the polymerization rate initially increased and
became then constant. At 70°C, the rate became constant earlier with the
$Be(C_2H_5)_2$ co-catalyst than with $Al(C_2H_5)_3$. $TiCl_3$ samples with surfaces of
9.2 and 5 m^2/g $TiCl_3$ were used. For the steady region of polymerization,
practically constant values (2.94 and 3.20, respectively) were obtained in

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the case of $Be(C_2H_5)_2$ for the specific constant $k_{spec} = k/S_{TiCl_3}$; for

$Al(C_2H_5)_3$, however, these values were less constant (1.50 and 1.11, respectively). Nearly the same activation energies of 16,200 $\pm$ 150 cal/mole were obtained, from the temperature dependences of the polymerization rate for $TiCl_3 + Be(C_2H_5)_2$, irrespective of the $TiCl_3$ surface. The activation energy for $TiCl_3$ and $Al(C_2H_5)_3$, which had been previously determined (Ref. 5, see above) was 13,600 cal/mole. It resulted from the temperature dependence of the molecular weight which had been determined viscosimetrically (in Tetralin at 135°C) according to $[\eta] = 2.5 \cdot 10^{-5} \cdot \bar{M}_v^{1.00}$, and of the intrinsic viscosity at different concentrations, that the ratio $[\eta]/c_{C_3H_6}$ depended slightly on temperature and P concentration. In the laboratory of the authors, Yu. V. Kissin determined the crystallinity of polypropylene (PP), obtained in the presence of $TiCl_3$ and $Be(C_2H_5)_2$, by means of an ИКС-14 (IKS-14) split-beam spectrometer. The 840 cm^{-1} band was used for the calculation, the 1170 cm^{-1} band as the internal standard

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of width. Fractionation was carried out by treating the polymers with boiling and cold heptanes. Polymerization temperature practically exerts no influence upon the stereoisomeric PP composition. The co-catalyst $Be(C_2H_5)_2$ is more stereospecific than $Al(C_2H_5)_3$ and other organometallic compounds. The crystallinity of PP somewhat increases with temperature. The authors previously (Ref. 5, see above) obtained, for the temperature dependence of the polymerization rate, the equation:

$$w = \frac{k_p k_i}{\frac{1}{v}k_p + k_i} S_{TiCl_3} c_0^{*},$$

$$(3),$$

where k_p = constant of the rate of growth; k_i = constant of the initiation rate; c_0^{*} = total concentration of active centers per unit surface; v = polymerization coefficient. For an almost equal binding strength of the ethyl radical and the growing polymer chain in the catalytic complex, $k_p \approx k_i$. As v varied from 11,400 to 1900, $(1/v)k_p \ll k_i$, and (3) becomes

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Kinetics and polymerization ...

$w = k_p S_{TiCl_3} c_o^*$. As for the co-catalyst $Be(C_2H_5)_2$ an activation energy in the chain growth is assumed 2600 cal/mole higher than that of $Al(C_2H_5)_3$, the expression $(A S_{TiCl_3} c_o^*)$ for $Be(C_2H_5)_2$ is 45 times that for $Al(C_2H_5)_3$.

The effective activation energy of the breaking of the polymer chains with $Be(C_2H_5)_2$ as a co-catalyst was determined to be 16.2 kcal/mole according to the temperature dependence of the viscosity of the resultant PP. In the case of $Al(C_2H_5)_3$, it is close to the activation energy of the chain growth, which is 14,000 cal/mole for coarsly disperse $TiCl_3$ samples. The experimental results show that organometallic compounds that react with $TiCl_3$ form a catalytic complex; the alkyl group does not affect the activity of the catalyst. The alkyl group is removed from that point of the active bond where the monomer molecules are incorporated. The metal atom, on the other hand, enters the catalytic complex during the whole chain growth, and its influence upon polymerization rate, molecular weight, and stereoisomerism of PP is, therefore, much greater than that of the

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S/190/61/003/009/008/016
B110/B101

Kinetics and polymerization ...

alkyl group. There are 3 figures, 3 tables, and 9 references: 2 Soviet and 7 non-Soviet. The three most recent references to English-language publications read as follows: Ref. 1: J. K. Stille, Chem. Revs, $\underline{58}$, 541, 1958; Ref. 2: G. Natta, J. Polymer Sci., $\underline{\text{+}}$, 21, 1959; Ref. 8: W. Heinen, J. Polymer Sci., $\underline{134}$, 545, 1959.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AS USSR)

SUBMITTED: November 1, 1960

Card 6/6

L 14707-66   EWT(m)/EWP(j)/T   RM

ACC NR: AP6002104   (A)   SOURCE CODE: UR/0062/65/000/011/2075/2077

AUTHORS: Fushman, E. A.; Tsvetkova, V. I.; Chirkov, N. M.

ORG: Institute for Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Polymerization of ethylene by the system $(C_5H_5)_2TiCl_2$ - $AlEt_3$ in 1,2-dichlorethane solution

TOPIC TAGS: polymer, polyethylene, catalytic polymerization, titanium compound

ABSTRACT: The effect of the catalytic system $(C_5H_5)_2TiCl_2$ - $AlEt_3$ in 1,2-dichlorethane solution on the polymerization of ethylene was studied to extend the previously published work by the authors (Dokl. AN SSSR. 164, 1085, 1965). The experimental procedure was identical to that reported by I. N. Meshkova, G. M. Bakova, V. I. Tsvetkova, and N. M. Chirkov (Vysokomolekul. soyedineniya. 10, 1516, 1961). The influence of the ethylene concentration and of the catalyst composition and concentration on the yield and molecular weight of the polyethylene was investigated. Experimental results are presented in graphs and tables (see Fig. 1). It was found that this catalytic system polymerized ethylene at a high rate of polymerization. The activity of the system is mainly determined by the molar ratio of

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UDC: 542.952+541.127
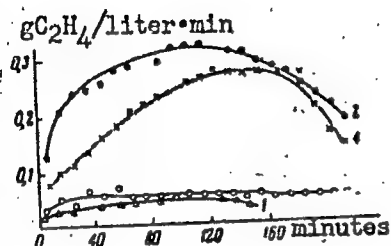
L 14707-66

ACC NR: AP6002104

Fig. 1. Change of the catalytic activity of the system $(C_5H_5)_2TiCl_2$ - $AlEt_3$ in time for different concentrations of $(C_5H_5)_2TiCl_2$ and $AlEt_3$ at 20C. Solvent - 1,2-dichlo-rethane, $p_{C_2H_4}$ = 390 mm Hg. 1 - $[(C_5H_5)_2 TiCl_2]$ = 1.2 x 10^{-3} M. Al:Ti = 3.3:1; 2 - $[(C_5H_5)_2TiCl_2]$ = 1.2 x 10^{-3} M. Al:Ti = 13.5:1; 3 - $[(C_5H_5)_2TiCl_2]$ = 0.32 x 10^{-3} M. Al:Ti = 12.5:1; 4 - $[(C_5H_5)_2TiCl_2]$ = 0.32 x 10^{-3} M. Al:Ti = 3.75:1.

gC_2H_4/liter·min

$(C_5H_5)_2TiCl_2$:$AlEt_3$. The molecular weight of the polyethylene increases with increase in the concentration of monomer, is practically independent of the initial concentration of $(C_5H_5)_2TiCl_2$, and decreases with increase in the initial concentration of $AlEt_3$. Orig. art. has: 1 table and 1 graph.

SUB CODE: 07/   SUBM DATE: 01Apr65/ ORIG REF: 003/ OTH REF: 003

BVK

Card 2/2

L 01153-66   EWT(m)/EPF(c)/EWP(j)/T   RPL   WW/RM

ACCESSION NR: AP5022004

UR/0286/65/000/014/0077/0077
678.742.2-134.23

AUTHOR: Dalin, M. A.; Bakhshi-Zade, A. A.o.; Kambarov, Yu. G. o.; Seidov, N. M. o.; Chirkov, N. M.; Tsvetkova, V. I.; Lisitsyn, D. M.; Arutyunov, I. A.

TITLE: A method for producing an ethylene propylene elastomer. Class 39, No. 172989

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 77

TOPIC TAGS: elastomer, ethylene, propylene, copolymerization, polymerization catalyst

ABSTRACT: This Author's Certificate introduces a method for producing an ethylene propylene elastomer by copolymerization of ethylene with propylene in a solvent in the presence of an organometallic Ziegler catalyst. Copolymerization is simplified by using liquid propylene as the solvent.

ASSOCIATION: none
SUBMITTED: 05Jul61   ENCL: 00   SUB CODE: MT
NO REF SOV: 000   OTHER: 000

Card 1/1 DP

MESHKOVA, I.N.; TSVETKOVA, V.I.; CHIRKOV, N.M.

Polymerization of ehtylene in the presence of titanium tetrachloride and aluminum alkyl halides. Izv.AN SSSR Ser.khim. no.1:77-83 '66.

(MIRA 19:1)

1. Institut khimicheskoy fiziki AN SSSR. Submitted August 22, 1963.

L 9822-66   EWT(m)/EWP(j)/T   RM
ACC NR: AP5026990   SOURCE CODE: UR/0020/65/164/005/1085/1088

AUTHOR: Fushman, E. A.; Tsvetkova, V. I.; Chirkov, N. M.; Dolgoplosk, B. A.
(Academician)

ORG: IKHFANS

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Peculiarities of ethylene polymerization catalysis with the use of the
systems $(C_5H_5)_2TiCl_2-Et_2AlCl$ and $(C_5H_5)_2TiCl_2-Et_3Al$ in alkyl chlorides
media

SOURCE: AN SSSR. Doklady, v. 164, no. 5, 1965, 1085-1088

TOPIC TAGS: ethylene, polymerization catalysis, titanium

ABSTRACT: The use of solvents containing an active Cl atom, such as $(CH_2Cl)_2$,
EtCl, or CH_2Cl_2 for polymerization of C_2H_4 with the title systems (I) and (II),
respectively, results in reactivation of the complexes that become practically in-
active during the process. Kinetic curves for polymerization of C_2H_4 in various

1/2   UDC: 542.973-541.6

L 9822-66
ACC NR: AF5026990

solvents in the presence of (I) indicate that in C_6H_6 or PhCl the system is
deactivated within 1 hour, owing to reduction of Ti(IV) to Ti(III). With (II)
this reduction occurs very fast and there is practically no polymer formed. In
the same conditions but with alkyl chlorides as solvents, the activity of (I) and
(II) remains unchanged for long periods. As a result, the yield of polyethylene
is much higher, no significant change of the molecular weight occurs, and the
degree of branching remains low. The author thanks Academician A. N. Nesmeyanov
for laboratory assistance. Orig. art. has: 4 figures and 2 tables.   44,55

SUB CODE: 07/   SUBM DATE: 25Feb65/.   NR REF SOV: 007/ OTHER: 004

HW
2/2

L 36972-66   EWP(j)/ EWT(m)   RM/WW
ACC NR: AP6008501   SOURCE CODE: UR/0062/66/000/001/0077/0083

AUTHOR: Meshkova, I. N.; Tsvetkova, V. I.; Chirkov, N. M.

ORG: Institute of Chemical Physics, Academy of Sciences, SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Polymerization of ethylene in the presence of titanium tetrachloride and alkyl halides of aluminum

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 77-83

TOPIC TAGS: catalytic polymerization, polymerization rate, ethylene, titanium compound, alkyl halide, aluminum compound

ABSTRACT: The authors study the relationship of the rates of accumulation of reduced titanium and rates of polymerization of ethylene in the presence of diethylaluminum chloride at 30C; molar ratios of $AlEt_2Cl$ to $TiCl_4$ of 0.6:1, 1.2:1, and 2.4:1; at a constant initial concentration of $AlEt_2Cl$ equal to $7.4 \cdot 10^{-3}$ M/liter. To elicit the effect of monoethylaluminum dichloride (which appears during reduction) on the catalytic properties of the system, experiments are carried out on the polymerization of ethylene on $TiCl_4$ and $AlEt_2Cl$ with additions of $AlEtCl_2$. The experiments demonstrated that, after the addition of $AlEtCl_2$ to the stable catalytic system formed upon the interaction of $TiCl_4$ and $AlEt_2Cl$, the activity of the catalyst noticeably drops. On the basis of these data the authors consider

UDC: 531.1+542.952

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L 36972-66

ACC NR: AP6008501   O

that the change in the composition of the cocatalyst (the replacement of $AlEt_2Cl$ by $AlEtCl_2$) is the basic cause for the decrease in the rate of polymerization in time. It was further found that in the catalytic systems forming in the reaction of $TiCl_4$ and organoaluminum compounds, there are other cocatalysts besides aluminum alkyls (titanium alkyls or complexes of $TiCl_4$ with titanium alkyls or aluminum alkyls) which, being adsorbed on the surface of the catalytic precipitate, form the most active centers of polymerization. Orig. art. has: 2 tables and 5 figures.

SUB CODE: 07/ SUBM DATE: 22Aug63/ ORIG REF: 009/ OTH REF: 006

Card 2/2

NOVOKSHONOVA, L.A.; TSVETKOVA, V.I.; CHIRKOV, N.M.

termination and initiation reactions of the polymeric chain in the polymerization of propylene on $VCl_3 - Al(iso-C_4H_9)_3$. Vysokom. soed.
7 no.5:898-901 My '65. (MIRA 18:9)

1. Institut khimicheskoy fiziki AN SSSR.

KISSIN, Yu.V.; TSVETKOVA, V.I.; CHIRKOV, N.M.

Determination of the isotacticity of polypropylene by means of infrared spectroscopy. Vysokom.soed. 7 no.7:1288-1290 Jl '65.
(MIRA 18:8)

1. Institut khimicheskoy fiziki AN SSSR.

FUSHMAN, E.A.; TSVETKOVA, V.I.; CHIRKOV, N.M.

Special features of catalytic polymerization of ethylene of the system $(C_2H_5)_2TiCl_2$ – Et_2AlCl and $(C_2H_5)_2TiCl_2$ – Et_3Al in an alkyl chloride medium. Dokl. AN SSSR 164 no.5:1085-1088 O '65.
(MIRA 18:10)

1. Institut khimicheskoy fiziki AN SSSR. Submitted March 17, 1965.